

**IN THE CLAIMS:**

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46. A semiconductor processing system, comprising:  
a mini-environment coupled to a wafer cassette;  
a robot disposed within the mini-environment;  
one or more load lock chambers connected to the mini-environment; and  
one or more process chambers connected to the one or more load lock  
chambers, wherein each load lock chamber is connected to a single process chamber.

47. The system of claim 46, wherein each load lock chamber comprises:  
an enclosure having a bottom, a lid and sidewalls defining a chamber cavity; and  
a transfer robot disposed in each load lock chamber adjacent the bottom and the  
lid.

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48. The system of claim 47, wherein a central portion of each chamber cavity has a  
diameter slightly larger than a diameter of a substrate to be received in the system.

49. The system of claim 47, wherein each load lock chamber is connected to the  
single process chamber in a linear configuration.

50. The system of claim 47, wherein the load lock chamber further comprises:  
one or more perforations disposed in the bottom thereof; and  
one or more lift pins slidably disposed through the one or more perforations.

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51. The system of claim 50, wherein the load lock chamber further comprises a cover  
having an opening and the lid is adapted to substantially cover the opening.

52. The system of claim 51, wherein the lid further comprises at least one stabilizing  
rod disposed through the lid and connected to the cover.

53. The system of claim 52, wherein the lid further comprises a bellow sleeves disposed around a lower portion the stabilizing rod.

54. The system of claim 46, further comprising a vacuum pump connected to the load lock chamber.

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55. The system of claim 48, wherein the load lock chamber further comprises:  
an elongated substantially rectangular aperture; and  
a hermetic sealing apparatus adapted to substantially cover the aperture.

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56. A semiconductor processing system for processing substrates, comprising:  
a mini-environment coupled to a wafer cassette;  
a robot disposed within the mini-environment;  
one or more load lock chambers connected to the mini-environment, each load lock chamber comprising:  
an enclosure having a bottom, a lid and sidewalls defining a chamber cavity having a central portion having a diameter slightly larger than a diameter of the substrates to be received in the system; and  
a transfer robot disposed in each load lock chamber, wherein each transfer robot comprises:  
one or more actuators;  
a linkage; and  
a substrate support means; and  
one or more process chambers connected to the one or more load lock chambers, wherein each load lock chamber is connected to a single process chamber.

57. The system of claim 56, wherein each load lock chamber is fluidly connected to the single process chamber via a substantially rectangular aperture.

58. The system of claim 57, wherein the load lock chamber further comprises a hermetic seal adapted to substantially cover the aperture.

Sub 47 59. The system of claim 58, wherein the load lock chamber further comprises:  
a cover having an opening and the lid is adapted to substantially cover the opening.

60. The system of claim 59, further comprising:  
a transfer assembly adapted to transfer the substrates to a plurality of positions.

B<sub>2</sub> 61. The system of claim 59, wherein the load lock chamber further comprises:  
one or more perforations disposed in the bottom; and  
one or more lift pins slidably disposed through the perforations.

62. The system of claim 61, wherein the lift pins are coupled at one end to a linear actuator.

63. The apparatus of claim 56, wherein a vacuum pump is in fluid communication with the load lock chamber.

64. The system of claim 61, wherein the lid further comprises:  
at least one stabilizing rod disposed through the lid and connected to the cover;  
and  
a bellow sleeves disposed around a lower portion the stabilizing rod.

Sub 57 65. A semiconductor processing system, comprising:  
a wall defining a mini-environment fluidly coupled to a wafer cassette containing one or more wafers;  
at least one robot disposed within the mini-environment and accessible to the wafer cassette via an opening in the wall;

one or more load lock chambers connected to the mini-environment, wherein the load lock chambers comprise a lid, bottom, and sidewall to define an enclosure having an inside diameter slightly larger than the a wafer to be received therein;

one or more process chambers fluidly coupled to the one or more load lock chambers, wherein each load lock chamber is connected to a single process chamber.

66. The system of claim 65, a slit valve positioned between each load lock chamber and its process chamber to provide a vacuum seal therebetween.

67. The system of claim 65, wherein each lid is movable in a vertical direction relative the bottom.

68. The system of claim 65, wherein the robot is disposed external to the one or more load lock chambers.

69. The system of claim 65, further comprising an internal robot disposed within each load lock chamber and in communication with the single process chamber coupled thereto.

70. The system of claim 65, further comprising a lifting apparatus configured to shuttle substrates from the mini-environment to the one or more load lock chambers.

71. A semiconductor processing system, comprising:  
a mini-environment coupled to a wafer cassette;  
a robot disposed within the mini-environment;  
a plurality of load lock chambers connected to the mini-environment; and  
a plurality of process chambers, each connected to a single load lock chamber.

72. A semiconductor processing system for processing substrates, comprising:  
a mini-environment coupled to a wafer cassette;  
a robot disposed within the mini-environment;

a plurality of load lock chambers connected to the mini-environment, each load lock chamber comprising:

an enclosure having a bottom, a lid and sidewalls defining a chamber cavity having a central portion having a diameter slightly larger than a diameter of the substrates to be received in the system; and

a transfer robot disposed in each load lock chamber, wherein each transfer robot comprises:

one or more actuators;

a linkage;

a substrate support means; and

a plurality of process chambers connected to the plurality of load lock chambers, each connected to a single load lock chamber.

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